

OK to enter Eraghu 3/27/07IN THE CLAIMS

Please amend the claims as follows:

Claims 1-7 (Cancelled)

Claim 8 (Currently Amended): An isolated polynucleotide which hybridizes to the complement of SEQ ID NO: 1 under stringent conditions and which encodes a polypeptide comprising SEQ ID NO: 2 that enhances temperature tolerance of *Acetobacter* or *Gluconacetobacter*;

wherein stringent conditions comprise washing in 1 x SSC and 0.1% SDS at 60°C; and

wherein growth and/or acetic acid fermentation of an *Acetobacter* or *Gluconacetobacter* transformed with said polynucleotide is enhanced at a temperature above the optimal fermentation temperature for the corresponding untransformed strain.

Claim 9 (Currently Amended): The isolated polynucleotide of Claim 8, which encodes the a polypeptide consisting of SEQ ID NO: 2.

Claim 10 (Previously Presented): The isolated polynucleotide of Claim 8, which comprises SEQ ID NO: 1.

Claim 11 (Previously Presented): A vector comprising the polynucleotide of Claim 8.

Claim 12 (Currently Amended): An isolated host cell transformed with the vector of Claim 11.

Claim 13 (Previously Presented): The host cell of Claim 12, which is *Acetobacter* that exhibits enhanced growth and/or fermentation of acetic acid at a temperature above the optimal fermentation temperature for the corresponding untransformed strain.

Claim 14 (Previously Presented): The host cell of Claim 12, which is *Gluconacetobacter* that exhibits enhanced growth and/or fermentation of acetic acid at a temperature above the optimal fermentation temperature for the corresponding untransformed strain.

Claim 15 (Currently Amended): A method for producing acetic acid comprising culturing the host cell of Claim 12, which is *Acetobacter* or *Gluconacetobacter* that exhibits enhanced growth and/or fermentation of acetic acid at a temperature above the optimal fermentation temperature for the corresponding untransformed strain.

Claim 16 (Currently Amended): An isolated polypeptide encoded by the polynucleotide of Claim [[9]] §.

Claim 17 (Currently Amended): The isolated polypeptide of Claim 16, which comprises consists of SEQ ID NO: 2.

Claim 18 (Currently Amended): The isolated polynucleotide ~~comprising~~
consisting of nucleotides 73 to 1251 of SEQ ID NO: 1.

Claim 19 (Previously Presented): The recombinant plasmid pUCGCS deposited
as FERM BP-8217.

Claim 20 (New): An isolated polynucleotide which encodes a polypeptide
comprising SEQ ID NO: 2 or a fragment of SEQ ID NO: 2 that enhances temperature
tolerance when expressed in *Acetobacter* or *Gluconacetobacter*;
wherein growth and/or acetic acid fermentation of an *Acetobacter* or
Gluconacetobacter transformed with said polynucleotide is enhanced at a temperature
above the optimal fermentation temperature for the corresponding untransformed strain.

Claim 21 (New): A vector comprising the polynucleotide of Claim 20.

Claim 22 (New): An isolated host cell transformed with the vector of Claim 21.

Claim 23 (New): A method for producing acetic acid comprising culturing the
host cell of Claim 22, which is *Acetobacter* or *Gluconacetobacter* that exhibits enhanced
growth and/or fermentation of acetic acid at a temperature above the optimal
fermentation temperature for the corresponding untransformed strain.

Claim 24 (New): An isolated polypeptide encoded by the polynucleotide of

Claim 20.